experiments of M. Mannoury, that this motion is, on the contrary, very injurious; the firmer the pivot of the axis is fixed, the better is the grinding performed; in this case, the stone becomes in some degree sonorous, and the sort of humming noise that it makes, informs the miller that it is in the most favourable position.

6. Belidor had also affirmed that the heavier the running stone is, the more considerable is its effect. M. Mannoury on the contrary, has found that light stones produce the most effect, but only until they are heated; that then they produce less effect than the heaviest stones, because the latter heat more slowly; this is expressed by the millers when they say that the mill is tired and wants rest, that is, it must have time to cool.

7. M. Mannoury made in the presence of the commissioners, a course of experiments, to ascertain the effect of the reacting machines that he employs in his mills. These experiments offer a series of facts, very useful to be known in practice. We have particularly remarked an ingenious expedient employed by the inventor, in order to render uniform the action of a variable power, such as the power of a man applied to a windlass, who is not always capable of employing the same degree of force and swiftness.

All these particulars are valuable, because they are the result of experiments made upon the principle of profiting by every little circumstance, without blindly following the common routine established by custom.

We think that the mills of M. Mannoury exhibit a happy application of the re-acting power of water, which for their simplicity and useful effects, merit to be often employed instead of the common mills, and that his researches are worthy of the approbation of the class.

Account of a Stone-Coloured Paint. By M. Carbonel.

(From the Annales des Arts et Manufactures.)

M. Carbonel having announced that by employing the serum of beefs blood, a stone coloured paint could be obtained capable of resisting the vicissitudes of the weather, and that it had perfectly succeeded in Spain, M. Guyton Morveau examined this process and the following are the results of his experiments.

The serum of the blood decanted three or four hours after it is collected, applied to soft stone, gives it a yellowish tinge. It resists water when it is very dry. It does not adhere to hard stone. The serum mixed with chalk stains the fingers, but it is washed off by water.

If a coat of the serum be laid on a soft stone, and if before it be dry some lime-water be added rather thick, a white colour remains which covers it thinly, but which resists water. The serum mixed with quick lime, and passed through a sieve, according to the author's process, forms a paste which, diluted with the same mordant and laid on directly, covers the stone with tolerable equality, and gives to it a colour more or less yellow according as the colouring parts remain more or less in the serum. It often requires two coats, and sometimes a third.

This paint is not injured either by friction, or by washing with water.

When applied upon pasteboard, it does not dissolve with water, but it does not adhere so well as the composition called *Bachelier*.

M. Carbonel anticipated, that this composition could not be coloured by the metallic oxyds, not even by those of lead and copper, which is obtained with the red, yellow, and green earths, &c. M. Guyton endeavoured to substitute the serum for the paste in the composition called *Bacheleir*, and he discovered that its adherence was nearly as strong; but that on washing it with water, some yellowish traces were left, produced by a commencement of the disoxydation of the lead.

The solidity of this colour depends upon the state in which the serum is taken. This subtance corrupts with so much facility, that it must be used the same day, or at the latest within twenty-four hours, and no more prepared than can be used directly. As soon as the putrid odour begins to manifest itself, the paint produced comes off in scales, or powder.

Thus we see that with proper care the serum, although it gives a mordant more difficult to use, and of less body than the old paints (which is no doubt owing to the quantity of gelatine it contains) may, by uniting it with quick lime, be made to form a paint that resists water.

This composition has been long used in China, where before they varnish wood they sometimes give a first coat of quick

lime, which they polish with pumice-stone when dry.

There may be some circumstances in which this composition may be used, in the place of and with rather less expense than some others, such as for covering exterior plaster work, where there is less inconvenience in laying a thick coat to preserve soft brick from injury by rain, and to give it the appearance of stone.

It is with this view that we can recommend it for trial.

Meteoric Stones.

In consequence of two recent falls of meteoric stones in France, and the recurrence of accurate observations of these phenomena, we feel it respectful to public curiosity to make some observations on the subject. Till within a few years, philosophers were incredulous in regard to the alleged facts, and they classed the reported falls of stones among the feats of witchcraft and the miracles of priestcraft; but the fact is now not only incontrovertible, but specimens of the stones are to be seen in our mineralogical cabinets, and above an hundred instances are recorded of their falls in different parts of the world. Various hypotheses have of course been announced by chemists and naturalists to account for such interesting phenomena. Some have supposed them to be projections from volcanoes in the Moon, others have ascribed them to projections from volcanoes on the Earth, while many have considered them as fragments of broken planets, circulating in the solar system, of which the *asteriods* are visible portions. The compass of a paragraph does not enable us to demonstrate all the absurdities of these hypotheses, arising from the improbability of any projections of the moon, or broken planets, falling in latitudes much higher than the Tropics, and from the inadequacy of terrestial projections, to the varied phenomena; nor is such a detail necessary, while it is so easy to reduce them to the level of ordinary nature. The power of the atmosphere to hold in solution, or to sustain, every thing which can assume the gaseous form, and the mechanical effects of currents in suspending pulverized substances like the sands of the African deserts, are well known. One result of this power we daily witness, in the infinitely varied appearances of the Aqueous Vapours, which exhibit under different circumstances of heat, electricity, atmospheric currents and density, the phenomena of dews, mists, fogs, clouds of various forms, and classes, condensations in rain, concretions in hail, crystallizations in snow, with whirlpools, &c. &c. Yet it is well known, that aqueous vapours form but a portion, perhaps indeed but an inconsiderable portion of the gaseous and volatile matters taken up by the atmosphere; and that all gases, or vapours, which are lighter than aqueous vapour, must ascend higher in the atmosphere and take their stations according to their specific gravities, lying or seeking to lie, like the coats of an onion, or the strata of the earth. Ought it then to be matter of wonder that these gaseous, decompounded, and volatilized matters produce their peculiar varieties of phenomena? Do we hourly witness without surprize a score of distinct productions of the aqueous vapours, and yet do we wonder at the igneous phenomena which result from the inflammable gases, and from their combinations with all the other bodies floating in and above our atmosphere? Can we suppose that they are exempt from fluctuations of the different regions more than the aqueous vapours? Can it be believed that variations of heat, of electricity, of density, of currents, act less sensibly on the volatilized vapours, and powerful chemical gases, than on the vapours of the sea? Do we not know from experiments, that they are more powerful, more subtle, their mutual actions even more striking, and their results more unexpected? Does not their mixture in our laboratories produce many concrete substances? Do they not severally hold in solution the materials of the aerolites, and frequently deposite them on explosion, or on union with other gases? And would not these chemical affinities and unions produce, in the upper regions of the atmosphere, variations of density which would often subject them to the accelerated motion of falling bodies; under different circumstances, combinations and arrangements, so as to produce the varied phenomena of shooting stars, moving diagonally between the two forces of increasing weight and increasing atmospheric resistance; of ponderous meteors or exploding trains, which traverse, with the mechanical action of fire-works, extensive portions of the atmosphere; and of aerolites produced by the union and detonation of gases, and their fortuitous and simultaneous union with other foreign bo-